

REMARKS

The final Office Action of August 10, 2006, has been received and reviewed.

Claims 1-33 are currently pending and under consideration in the above-referenced application. Of these, claims 1, 2, 9, 13-18, 21-24, 28, 32, and 33 have been rejected, while claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 are directed to allowable subject matter.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, 9, 13-18, 21-24, 28, 32, and 33 are rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Sanders in View of Tischler

Claims 1, 2, 9, 17, 18, 21-24, 28, 29, 32, and 33 stand rejected under 35 U.S.C. § 103(a) for being drawn to subject matter that is assertedly unpatentable over the teachings of U.S. Patent 5,506,607 to Sanders, Jr., et al. (hereinafter "Sanders"), in view of teachings from U.S. Patent Application Publication 2003/0114016 of Tischler (hereinafter "Tischler").

The teachings of Sanders relate to apparatus that are used to form three-dimensional (3-D) models by "plotting" material (*e.g.*, like an ink jet printer) onto a horizontally oriented, vertically moveable support 10. Sanders teaches that the support 10 is a flat structure to which a planar fabrication plate, or "base plate," may be adhered. Col. 14, lines 1-3. The base plate may include a surface that has been coated with a so-called "build

material (MC),” which secures a sacrificial element, such as a card or sheet of polystyrene foam, to the base plate. Col. 13, line 30, to col. 14, line 11. The sacrificial element is, in turn, coated with the MC prior to fabrication of a model thereover. *Id.* Once the 3-D model has been formed, the model may be readily removed from the support 10 and the base plate by manipulation or dissolution of the sacrificial element. Col. 14, lines 13-46.

Tischler teaches a wafer handling system that may be used in conjunction with process tools such as “epitaxial thin film deposition reactor[s].” Paragraph [0007]. Specifically, the wafer handling system of Tischler, which is configured to be assembled with a recess of a susceptor of an epitaxial thin film deposition reactor, includes one or more receptacles that will receive wafers of different sizes than the receptacle of the susceptor is configured to receive. Paragraphs [0031] and [0033]. Thus, the wafer handling system of Tischler is an adapter that facilitates the use of different sized wafers in a reaction chamber that is configured for use with a limited number of (*e.g.*, one) of wafer sizes.

It has been asserted that either the base plate or the sacrificial element of Sanders is a substrate, as recited in both independent claim 1 and independent claim 22. Final Office Action, page 8. Even assuming, *arguendo*, that either of these elements is a substrate, as that term is used in independent claims 1 and 22, it is respectfully submitted that there are at least two reasons that the teachings of Sanders, in view of teachings from Tischler, do not support a *prima facie* case of obviousness against independent claim 1, independent claim 22, or any of claims 2, 9, 13-18, 21, 23, 24, 28, 32, and 33 depending therefrom.

First, it is respectfully submitted that Sanders and Tischler do not teach or suggest each and every element of any of claims 1, 2, 9, 17, 18, or 21.

With respect to the subject matter recited in independent claim 1, neither Sanders nor Tischler includes any teaching or suggestion of a method that includes “preventing unconsolidated material from contacting a bottom surface of a substrate as one or more objects are being fabricated on or adjacent to the substrate . . .”

Sanders merely teaches that the base “plate is attached firmly to the platform by double-sided adhesive tape or clips . . .” (col. 14, lines 1-3) and that the sacrificial element is

secured to the base plate with the MC (col. 13, lines 45-50) or a styrene-toluene adhesive (col. 14, lines 4-6). The use of the MC to secure a sacrificial substrate to the base plate certainly wouldn't prevent unconsolidated material from contacting a bottom surface of the sacrificial material. Further, Sanders provides no teaching or suggestion that the use of double-sided tape, clips, or styrene-toluene adhesive would prevent unconsolidated material from contacting the bottom surface of either the base plate or the sacrificial material.

Tischler does not fill this deficiency. One of ordinary skill in the art would have no reason to expect that the wafer handling system, or wafer adapter, of Tischler, which is configured for use in epitaxial film deposition chambers (of, *e.g.*, physical vapor deposition (PVD) reactors, chemical vapor deposition (CVD) reactors, and atomic layer deposition (ALD) reactors) could prevent unconsolidated material from contacting a bottom surface of a substrate as one or more objects are being formed on the substrate.

Claim 29 is drawn to a method that includes dispensing unconsolidated material in a laminar flow, whereas the teachings and suggestions of Sanders are limited to ejection of jetting beads, or droplets.

Second, it is respectfully submitted that, without the benefit of hindsight that has been provided by the claims of the above-referenced application, one of ordinary skill in the art wouldn't have been motivated to combine teachings from Sanders and Tischler in the manner that has been asserted. Most notably, one of ordinary skill in the art wouldn't have been motivated to use an adapter for use in epitaxial thin film deposition chambers with a 3-D printing system. Nor has the Office established such motivation. Sanders provides no teaching or suggestion that relates to use of the system disclosed therein to fabricate models on silicon wafers. Tischler provides no teaching or suggestion that the adapter disclosed therein may be used in a 3-D printing system or, for that matter, in any environment other than a chamber of an epitaxial thin film reactor.

Moreover, as Sanders lacks any teaching or suggestion that the support 10 of the 3-D modeling apparatus disclosed therein could not hold substrates of certain shapes or dimensions,

there would be no reason for one of ordinary skill in the art to unnecessarily complicate the system of Sanders by modifying it to use the wafer carrier of Tischler.

Therefore, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject recited in each of claims 1, 2, 9, 17, 18, 21-24, 28, 29, 32, and 33 is allowable over the subject matter taught in Sanders and Tischler.

Sanders, Tischler, and Jensen

The rejections of claims 13-16 under 35 U.S.C. § 103(a) are based upon the teachings of Sanders, in view of teachings from Tischler and, further, in view of the subject matter taught in U.S. Patent Application Publication 2001/0032111 of Jensen, Jr., et al. (hereinafter "Jensen").

Claims 13-16 are each allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

Each of claims 13-16 is further allowable since none of Sanders, Tischler, and Jensen, or any combination thereof may be used to establish a *prima facie* case of obviousness. In particular, it is respectfully submitted that Jensen does not remedy the aforementioned deficiencies of either Sanders or Tischler. Furthermore, without the benefit of hindsight that the claims of the above-referenced application afford, it is not understood how or why one of ordinary skill in the art would have been motivated to fabricate a polishing pad in accordance with the teachings of Sanders on a substrate supported by the wafer carrier of Tischler or Sanders.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 is respectfully requested.

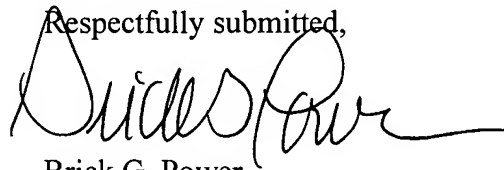
Allowable Subject Matter

The indication that claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 recite allowable subject matter is gratefully acknowledged. None of these claims has been amended to independent form, however, as the claims from which they depend are believed to be allowable.

CONCLUSION

It is respectfully submitted that each of claims 1-33 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brick G. Power", with a long horizontal flourish extending to the right.

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